



## **Cambridge IGCSE**<sup>™</sup>

CANDIDATE NAME					
CENTRE NUMBER			CANDIDATE NUMBER		

MATHEMATICS 0580/22

Paper 2 (Extended) May/June 2020

1 hour 30 minutes

You must answer on the question paper.

You will need: Geometrical instruments

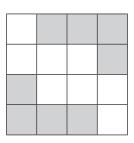
## **INSTRUCTIONS**

- Answer all questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do not write on any bar codes.
- You should use a calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For  $\pi$ , use either your calculator value or 3.142.

## **INFORMATION**

- The total mark for this paper is 70.
- The number of marks for each question or part question is shown in brackets [ ].

This document has 12 pages. Blank pages are indicated.



Write down the order of rotational symmetry of the diagram.

		[1]
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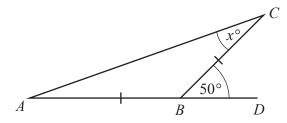
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2 At noon the temperature in Maseru was 21 °C. At midnight the temperature had fallen by 26 °C.

Work out the temperature at midnight.

°C [1]		
	$\circ C$	Г17
	 $\sim$	[I]

3



NOT TO SCALE

AB = BC and ABD is a straight line.

Find the value of x.

<i>x</i> =	. [2]
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4 Write down

(a) a square number greater than 10,

····· [1]																																																				1	[	]	
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**(b)** an irrational number.

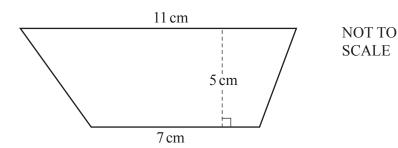
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   1

$$5 y = mx + c$$

Find the value of y when m = -3, x = -2 and c = -8.

$$y =$$
 [2]

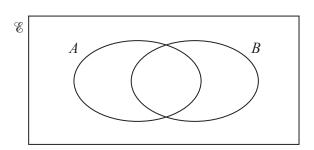
6



Calculate the area of the trapezium.



7

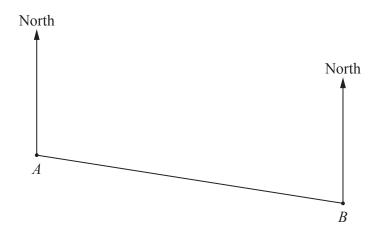


On the Venn diagram, shade the region  $A \cap B$ .

[1]

8 Write  $2^{-4}$  as a decimal.

	[1]	]	
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NOT TO **SCALE** 

The bearing of B from A is  $105^{\circ}$ .

Find the bearing of A from B.



Simplify.

$$\frac{p}{2q} \times \frac{4pq}{t}$$

Without using a calculator, work out  $1\frac{3}{4} - \frac{11}{12}$ . You must show all your working and give your answer as a fraction in its simplest form.

 [3]

Roberto buys a toy for \$5.00. He then sells it for \$4.60.

Calculate his percentage loss.

% [2
------

13 Simplify  $8t^8 \div 4t^4$ .

14 Solve the equation.

$$\frac{1-x}{3} = 5$$

$$x = \dots$$
 [2]

15 Ella's height is 175 cm, correct to the nearest 5 cm.

Write down the upper bound of Ella's height.

16 Calculate  $(3 \times 10^{-3})^3$ . Give your answer in standard form.

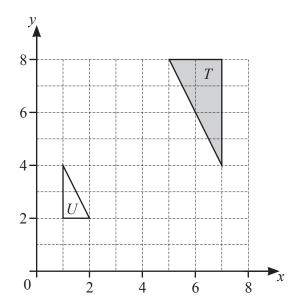
.....[1]

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A train of length 105 m takes 11 seconds to pass completely through a station of length 225 m. Calculate the speed of the train in km/h.

..... km/h [3]

18

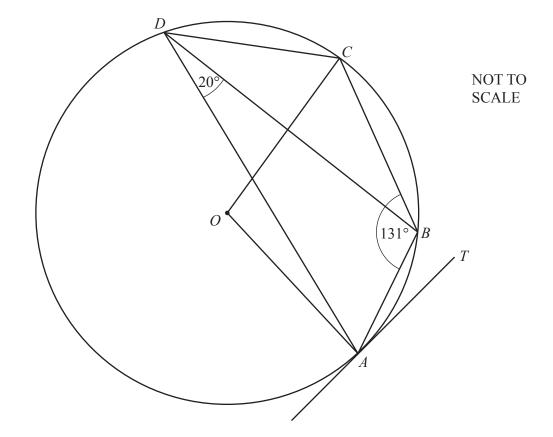


Describe fully the **single** transformation that maps triangle T onto triangle U.

Make y the subject of the formula.  $h^2 = x^2 + 2y^2$ 

$$h^2 = x^2 + 2y^2$$

$$y = \dots$$
 [3]



A, B, C and D lie on the circle, centre O. TA is a tangent to the circle at A. Angle  $ABC = 131^{\circ}$  and angle  $ADB = 20^{\circ}$ .

Find

(a) angle ADC,

Angle 
$$ADC = \dots$$
 [1]

**(b)** angle *AOC*,

(c) angle BAT,

Angle 
$$BAT = \dots [1]$$

(d) angle *OAB*.

Angle 
$$OAB = \dots$$
 [1]

21 Simplify.

(a)	$(5x^4)^3$
( •• )	(500)

.....[2]

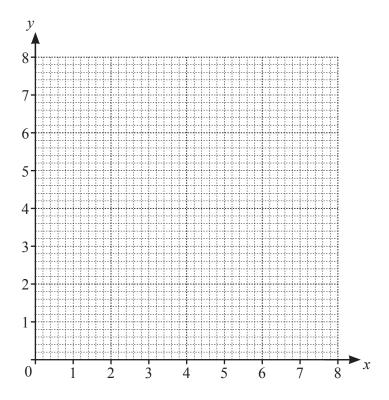
**(b)**  $(256x^{256})^{\frac{3}{8}}$ 

.....[2]

22 p is directly proportional to  $(q+2)^2$ . When q = 1, p = 1.

Find p when q = 10.

$$p = \dots [3]$$

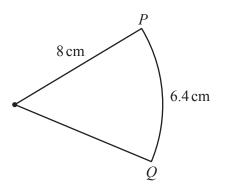


(a) By drawing suitable lines and shading unwanted regions, find the region, R, where

$$x \ge 2$$
,  $y \ge x$  and  $2x + y \le 8$ . [5]

**(b)** Find the largest value of x+y in the region R.

Г	11
	1



NOT TO SCALE www.mymathscloud.com

The diagram shows a sector of a circle of radius 8 cm. The length of the arc PQ is 6.4 cm.

Find the area of the sector.

 $cm^2$	[4]

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$$\frac{2x^2 + x - 15}{ax + 3a - 2bx - 6b}$$

**26** 
$$\sqrt[3]{y^2} = \sqrt[6]{x}$$
 and  $y = \sqrt[n]{x}$ .

Find the value of n.

$$n = \dots [2]$$

Question 27 is printed on the next page.

 $\frac{1}{6}$  cm  $\frac{1}{6}$  cm  $\frac{1}{8}$  cm  $\frac{1}{8}$  cm  $\frac{1}{8}$ 

NOT TO SCALE

The diagram shows a cuboid. AB = 8 cm, AD = 6 cm and DH = 6 cm.

Calculate angle *HAF*.

Angle 
$$HAF = \dots [6]$$

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